

CHAPTER 3

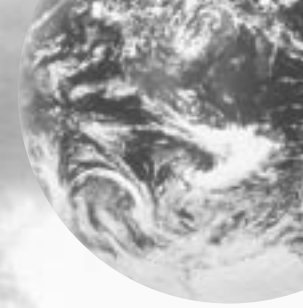
Restoring the Future

Making SMART Cleanup Happen

SMART cleanup is more than just a catch-phrase. It is a corporate strategy to fundamentally change the way we do business. Our challenge is to find more efficient, cost effective ways to accomplish our environmental cleanup objectives. Cut process and red tape. Employ new procedures and technologies. Pursue opportunities to better leverage our resources. Deployment of this concept may require us to challenge conventional wisdom. Rear Admiral Grace Hopper, the grandmother of Navy computing, said it best, "The most damaging phrase in the English language is: 'It's always been done that way.' " SMART cleanup will help us break the mold and achieve our cleanup objectives faster.

**Honorable Robert B. Pirie, Jr., Assistant Secretary
of the Navy (Installations and Environment)**

The Department of the Navy carries out its Environmental Restoration Program through the Naval Facilities Engineering Command and its eight engineering field divisions and activities (EFDs and EFAs). While installations maintain ultimate responsibility for their respective cleanup programs and generally take the lead in community relations, outreach, and public involvement, a cadre of dedicated environmental



professionals from the EFDs and EFAs play a critical role in getting the job done. These professionals are known as remedial project managers and remedial technical managers, and SMART cleanup is something they do every day.

A remedial project manager, or RPM, is assigned for each installation in each geographic region covered by an EFD or EFA. Some RPMs may be assigned several installations, and some installations may have more than one RPM. Each RPM is responsible for coordinating, directing, and reviewing cleanup work; ensuring compliance with the National Contingency Plan; and recommending action on decisions at each installation under his or her purview. A remedial technical manager, or RTM, typically has a technical specialty, such as underground storage tanks, and as a subject matter expert can serve as support for multiple RPMs.

The RPMs work at the EFD or EFA but interact closely with personnel at installations to which they are assigned. They work with the installations and regulators to plan, set priorities, establish budgets, and coordinate project execution. The RPMs and the support staff at the EFD or EFA centrally manage contracting, technical coordination and direction, and performance of the work.

The regionally centralized approach offered by the EFD or EFA provides the Navy with a number of benefits, including consistency, efficiency, and economies of scale. Some of these benefits can be seen in the successful partnering efforts among EFD/EFAs (representing the installations), U.S. EPA regions, and states. The regional approach allows partnering efforts to be especially well coordinated and efficient, and helps maintain program continuity over time.

Other benefits of the regional approach are consistency in policies and guidance, management and technical approaches, and planning and priority setting within a given EPA region; enhanced communication and sharing of information and lessons learned among RPMs; and efficiencies and economies of scale in contracting and other resource-support activities.

RPMs and RTMs—Who They Are and What They Do?

While it's relatively easy to see the totality of their work, we don't have the opportunity to recognize individuals out in the field as frequently as we would like. In the following pages you will meet some of them, read about their accomplishments, and visit several installation success stories that came about, at least in part, due to their efforts.

Getting the Job Done

The RPMs and RTMs associated with Northern Division (NORTHDIV)—three of whom we invite you to meet here—are responsible for 25 installations and a variety of cleanup challenges. Their SMART cleanup actions have made a positive difference.

SMART People



John Kolicius, RPM

initiated feasibility studies (FSs), proposed remedial action plans (PRAPs), and RODs at nine additional sites. Working with regulators and the Restoration Advisory Board, Mr. Kolicius was able to draft and implement a long-term plan for completion of all restoration work at the Naval Weapons Station.



James Colter, RPM

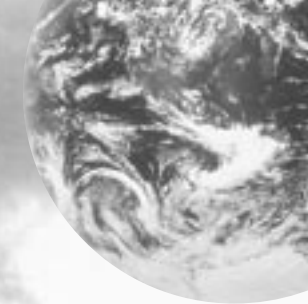
role (involving CERCLA, RCRA, NEPA, asbestos/lead-based paint, and other compliance endeavors) *and* prepare an environmental baseline survey (EBS) and the associated follow-on sampling and cleanup effort. Mr. Colter performed both of those functions in addition to his regular RPM duties. His efforts, above and beyond his regular duties, led to the early transfer of property, thereby saving the Navy money.

John Kolicius is the remedial project manager for Naval Weapons Station (NWS) Earle, Naval and Marine Corps Reserve Detachment (NMCRD) Floyd Bennett Field, and Naval Station (NS) New York. He was recognized recently for his work at NWS Earle. In one year he finalized the remedial investigation (RI) for 27 sites, completed removal actions and documentation for three sites, signed records of decision (RODs) for three other sites, initiated design and awarding of remedial construction for the three record of decision (ROD) sites, and

Environmental engineer ***James Colter*** serves as RPM for Naval Weapons Industrial Reserve Plant (NWIRP) Calverton, NWIRP Bethpage, and Naval Air Station (NAS) Willow Grove. When the Naval Air Systems Command (NAVAIR) announced it would be excessing its Calverton facility as a non-BRAC closure, it became apparent that an intensive coordination effort of the many environmental programs at NWIRP Calverton would be necessary to meet NAVAIR's tight transfer schedule.

Someone had to take on a coordination

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Jeffrey M. Dale, RTM

Jeffrey M. Dale is a remedial technical manager in NORTHDIV's Restoration Technical Branch and is the 1998 recipient of the Richard L. Gillespie Award for Environmental Excellence. The annual award recognizes a NORTHDIV individual who made a significant contribution toward preserving and improving the environment. It is named after NORTHDIV's former Environmental Division director, who was known and respected for his personal integrity, professional excellence, courage, and dedication as he moved the DON forward in the environmental arena.

Mr. Dale's superior technical knowledge has been critical to the progress made at the three activities he supports—Naval Submarine Base (NSB) New London, Naval Air Warfare Center (NAWC) Trenton, and Naval Air Station (NAS) Brunswick. He led the successful effort to have the state of Connecticut reclassify the groundwater at a site at NSB New London, resulting in saving the Navy time and money for cleanup. He designed an innovative groundwater treatment system at NAWC Trenton that provides a cost-effective solution for a contaminated waste stream. At NAS Brunswick he helped provide a smooth transition during a time when key environmental personnel for the EPA, the state of Maine, and the Navy all changed within six months. An expert in hydrology, he was able to provide excellent technical support for tackling groundwater problems during and after that critical time.



Scott Horwitz

Scott Horwitz receiving the Secretary of Defense Productivity Excellence Award in Washington, DC, from the Honorable Rudy deLeon, Under Secretary of Defense (Personnel and Readiness) (left) and John Dalton, former SECNAV.

Environmental Excellence In Action

It's not every day that a Washington state resident receives recognition in Washington, DC., but it happened in a big way on May 13, 1998. That's when **Scott Horwitz**, an environmental engineer for EFA Northwest in Poulsbo, Washington, received the Secretary of Defense Productivity Excellence Award at a Pentagon ceremony. The award, which celebrates exceptional initiative and innovation, recognizes individuals who made substantial improvements in Department of Defense operations and encourages individuals to look for better ways to do their jobs.

The airstrip at Barrow, Alaska, experienced four major fuel spills between 1970 and 1982. Studies later showed that petroleum contamination was migrating toward Lake Imikpuk, a source of local drinking water. Mr. Horwitz conceptualized a recovery system that impeded the flow of the spilled jet fuel by elevating permafrost from its natural elevation, creating a subsurface ice dam. The dam sealed groundwater in place, preventing the fuel from getting into the lake.

This SMART cleanup project has been a win-win situation for the Navy and the local community. Mr. Horwitz also saved the Navy more than \$1.2 million by locating a buyer for the recovered fuel, thereby avoiding \$22 per gallon in disposal costs. A local corporation thus obtains usable fuel at a fraction of the retail cost.



Jeffrey Yamamoto

Jeff Yamamoto and family being presented his Meritorious Civil Service Award by then-PACDIV Commander Rear Adm. Thomas Dames.

Restoration Section of the Environmental Restoration Branch, Environmental Division, of NAVFAC's Pacific Division (PACDIV). Recently Mr. Yamamoto was awarded the Department of the Navy's Meritorious Civilian Service Award for his significant contributions in the cleanup of all Pacific Area BRAC sites, including Midway Island and Guam.

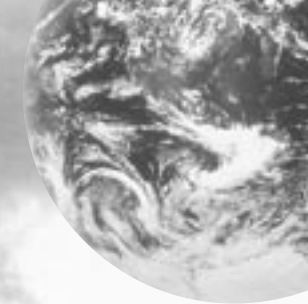
At Midway, Mr. Yamamoto was responsible for removal of above-ground and underground storage tanks; the recovery of petroleum products from over 60 acres; capping of landfills; investigation and cleanup of contaminated sites; removal of vehicles and batteries from a lagoon; and neutralization of gas cylinders in the harbor. His SMART and successful cleanup efforts enhanced the beauty of Midway Island and expedited its turnover to the U.S. Fish and Wildlife Service for a wildlife refuge. At the turnover ceremony, Navy Secretary Dalton said, "This truly is a great day for our Navy and the nation, as we trade guns for gooneys. This transfer marks another glorious page in our history."

At Guam, Mr. Yamamoto led the project teams that successfully completed an expedited "Finding of Suitability to Lease," allowing the Navy to "hot" lease its Ship Repair Facility to the Government of Guam, and ensure continuous employment for hundreds of civilian employees. Under his leadership, sensitive regulatory issues and challenging coordination problems were overcome and work was completed ahead of schedule.

Award Winning Performers

Professionalism,
inspirational
leadership,
innovative foresight,
untiring dedication.
Each has been used
to describe the
work of ***Jeffrey
Yamamoto***, head
of the BRAC

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Ann Tanaka, RPM

Ann Tanaka, PACDIV Code 1821, receiving her award at Port Hueneme from NAVFAC's Bob Carlson (left) and Ted Zagrobelny.

Ann Tanaka is also associated with PACDIV. As the RPM for Public Works Center (PWC) Pearl Harbor, Ms. Tanaka recently won the RPM Case Study Contest for her essay titled "EET TechExtract Solvent Washing Demonstration." Her report discussed an innovative solvent washing technology to remove PCBs from concrete at Pearl Harbor. The contaminated site (TG-04) was the transformer vault at the Ford Island family housing air raid shelter, which had housed a transformer containing PCB-laden oils. Contamination of concrete resulted from years of operation and maintenance.

sampling to training personnel in how to use this innovative technology. Among the lessons learned: use all available resources so the project can benefit from existing knowledge; facilitate regulatory approval through project coordination and open communication; collect characterization samples before treating a site; PCBs can penetrate into concrete; and there are several easy techniques for operating a solvent washing technology. These lessons can translate into avoiding unnecessary cleanup costs and have Navy-wide applicability.

Ms. Tanaka's report explored everything from site



Ryan Mayer, RPM

Ryan Mayer of EFA Chesapeake works for the Installation Restoration Program at the NSWC Dahlgren.

Meeting the Challenge

EFA Chesapeake may be headquartered at the historic Washington (D.C.) Navy Yard, but that doesn't mean its RPMs are living in the past. Anything but.

Ryan Mayer is a case in point. He's the remedial project manager for the Dahlgren Naval Surface Warfare Center in Virginia, and an integral part of the center's Installation Restoration Team.

Dahlgren NSWC is located on the Virginia shore of the Potomac River 53 miles south of Washington, DC. Since 1918 the installation tested naval ordnance including aircraft bombs, rockets and projectiles. Some of these operations contributed to environmental contamination. The NSWC was placed on the NPL in 1992 because of potential migration of releases from three contaminated sites that could affect the Potomac River, Gambo Creek, associated wetlands, and local groundwater aquifers that are used for drinking water.

In 1998 Mr. Mayer—as part of a partnership between the Navy, regulators, and contractors—was responsible for completion of two records of decision (RODs) for three sites. These documents represent the final agreement between the installation, state and EPA concerning the selection of the remedial action at a site or group of sites. Even though not scheduled for review and signature in FY98, the Dahlgren team was able to substitute their RODs and get them completed when others were dropped. One of the RODs included the use of phytoremediation, an innovative technology employing vegetative cover to reduce rainfall infiltration into a landfill.



Armalia Berry

Armalia Berry of EFA Chesapeake—BRAC environmental coordinator for the former NSWC White Oak and RPM for Naval Security Station Washington.

Armalia Berry is a colleague of Ryan Mayer. She, too, served with distinction, working on two of the activity's most complicated and high-profile IR programs. For both she used her considerable skills to work with regulators and the public, helping to defuse sensitive issues.

When she was assigned as the BRAC environmental coordinator for White Oak NSWC, Ms. Berry inherited a program which was only beginning to build credibility with the public. White Oak NSWC, which permanently closed in July 1997, had functioned as the principal Navy research, development, test, and evaluation center for ordnance technology, concepts, and systems.

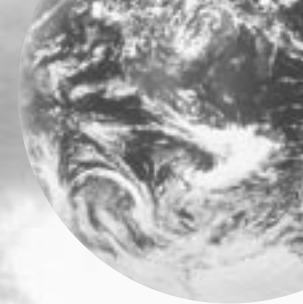
Environmental issues warranting investigation and remedial action arose primarily from past disposal procedures that led to chemical contamination. These practices included landfilling of oils, PCBs, solvents, paint residue, and miscellaneous chemicals, and the disposal of chemical research wastewater in dry wells. Potential contaminant migration at White Oak was most likely to be coupled with direct surface runoff or shallow groundwater discharge to surface waters.

Working closely with the EPA, the Maryland Department of the Environment, and the local community, Ms. Berry developed and executed a well-thought-out, accelerated plan for completing the investigations and cleanups required at White Oak.

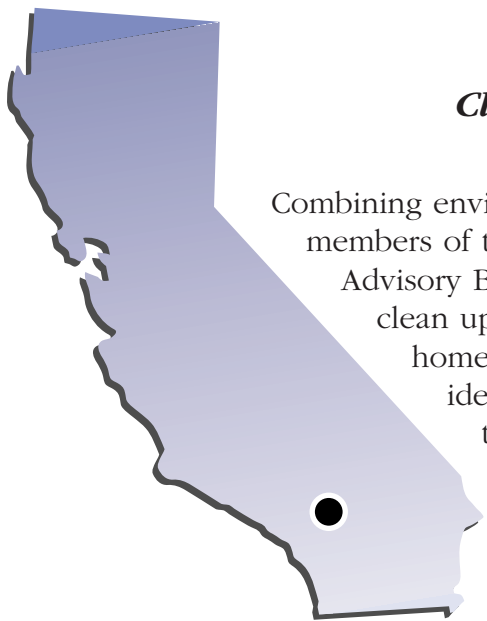
At the same time, Ms. Berry was responsible for managing a project to restore the National Park Service's Glover Archibald Park in Washington, DC, whose main stream had been contaminated with PCBs from Navy releases. As the RPM for Naval Security Station Washington, Ms. Berry worked closely with the Park Service, EFA Chesapeake, the NSS, the District of Columbia and the local community. In a ceremony at the project site on June 20, 1998, the Restoration Advisory Board lauded the Navy's actions. Ms. Berry was responsible for managing the entire \$2M-plus project.

Let's now take a look at some of the installation success stories for which these and other RPMs and RTMs around the country have been responsible over the last year. . .

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SMART Cleanup Successes



China Lake

Close Community Ties Are Key to Successful Cleanup and Cost Savings

Combining environmental concerns with SMART business decisions, community members of the Naval Air Weapons Station (NAWS) China Lake Restoration Advisory Board (RAB) are working with the Navy and regulatory agencies to clean up hazardous waste at the active Navy installation near their hometown of Ridgecrest, California. Initial investigations at China Lake identified a total of 79 sites on the base that needed further study. Of these, 43 sites need no further action. Good community relations along with the Navy's push for community involvement were major factors in the success of the no-further-action sites.

One of the unique aspects of the NAWS China Lake RAB is the close tie between community members, regulatory and cooperating agencies, and the installation. Since NAWS China Lake is the major employer in the area, many community members have some tie to the station—either through past employment or through family members who work or worked at the station as a DOD employee or contractor. This worked to the advantage of the cleanup program.

The NAWS China Lake RAB is an extremely competent and dedicated group of individuals that uses a very disciplined approach to identify and clean up areas where valid concerns exist.

Capt. John D. Langford, commanding officer of NAWS China Lake and Navy co-chair of the RAB.

manager for NAWS China Lake. "The site was designed and used only for work on conventional explosives, but the state felt that radioactive materials might have been brought in. Al Wiruth, a community RAB member who happened to work aboard the Station at the time the Atomic Energy Commission was operating, said this was not the case. He and another RAB member got together and contacted personnel they knew who worked at the site during the Atomic Energy Commission

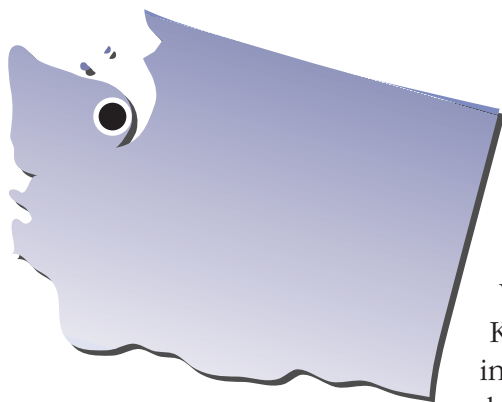
"A state agency wanted sampling for radioactive materials at a site that was constructed by the Atomic Energy Commission during the Manhattan Project," said Jim McDonald, remedial project



NAWS China Lake, California RAB Tour

years and confirmed the site's history as presented by the Navy. This allowed a removal action to proceed without the significant delays and costs radionuclide sampling would have generated."

The NAWS China Lake RAB held its first public meeting in June 1995. The RAB currently consists of 11 community members and eight regulatory and cooperating agency members, and is co-chaired by a community member and the commanding officer of NAWS China Lake.



Keyport, Washington

RAB Support of "Green" Technology Saved Millions of Dollars

Without a doubt Naval Undersea Warfare Center (NUWC) Division Keyport, Washington, is out in front in innovative and cost effective cleanup technology. This "Green"

technology will allow safe cleanup of landfill contaminants.

Through the active support of the Restoration Advisory Board (RAB), community relations were improved and the Navy has saved millions of

Diane Jennings, manager of the Installation Restoration Program for Keyport, is convinced it's important to work closely with the community. She says, "When we started examining alternatives in 1993, there really wasn't much available for this site except removal or containment, all very costly and over-responsive to the situation. But time, technology, and persistence have worked in our favor. The long-term commitment of Navy and community members has resulted in a positive working relationship. And the community's enthusiasm for phytoremediation has really made this an exciting remedy selection, probably one of the most natural available. I'm looking forward to seeing the results of this remedy."

dollars. Ensuring community involvement in the cleanup decision-making process, the installation held several open houses, distributed fact sheets, and conducted base tours that fostered proactive community relations.

NUWC Division Keyport is a light industrial facility surrounded on three sides by the marine waters of Puget Sound, 25 miles west of Seattle, Washington. A shallow sea level aquifer system and a

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NUWC Keyport, Washington

deep artisan aquifer underlie the base. The deep aquifer is a source of water for the station and the Public Utility District. The NUWC was established in 1914 to build, test, and issue torpedoes. Currently it provides support for undersea weapons systems, countermeasures, and sonar systems. The systematic filling in of wetlands adjacent to the tidal flats, which empty into Dogfish Bay, began around 1939. Over the years many wastes were deposited into the marshland and rest 15 to 20 feet deep in the water table. As a result, high concentrations of volatile organic compounds are found

in the groundwater beneath the landfill. Studies show that these contaminants are slowly migrating to the marsh area, the tidal flats, and Dogfish Bay.

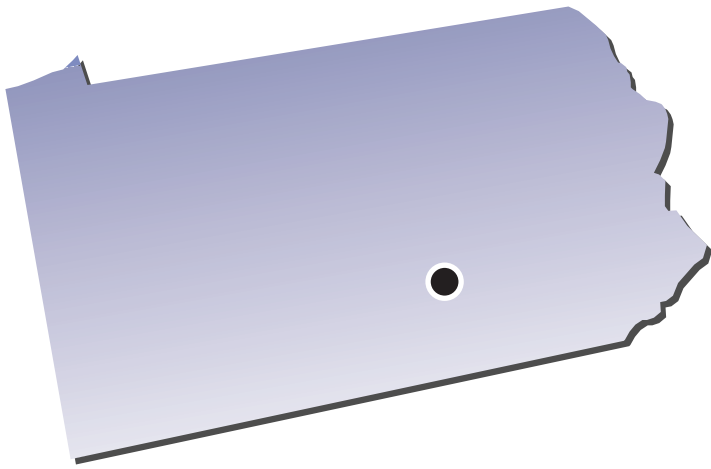
A team was put together to determine the method to be used to clean up the landfill. The team included Engineering Field Activity Northwest, NUWC Division Keyport, Washington State Department of Ecology, representatives from the Environmental Protection Agency, the Suquamish Tribe, the Keyport/Liberty Bay RAB, the U.S. Geological Survey, and the University of Washington. Additional consultation was provided from the Agency for Toxic Substance and Disease Registry (ATSDR), Washington State Fishery, Washington State Wetlands Branch, from NFESC "Tiger Team" consultants.

Phytoremediation—the use of plants to cleanup groundwater contamination—became a topic of interest among members of the RAB. They contacted the University of Washington research team after seeing a report of the team's work in the news. Experts from NFESC's Tiger Team met jointly with the Keyport Environmental Restoration Program Team to determine the technologies that showed the most promise for the site. These became the foundation of the focused feasibility study. RAB enthusiasm for phytoremediation brought researchers from the university to a RAB meeting to make a presentation. All of the activities—brainstorming sessions held among regulators and RAB members, Tiger Team consultation meetings, community and RAB meetings, and Focused Feasibility Studies—resulted in a proposed plan that was accepted by the RAB.

Public response to this technology has been overwhelmingly positive, too. Using phytoremediation has the potential to save millions of dollars in cleanup costs. Phytoremediation costs are estimated to be \$3.4 million while alternative solutions ranged up to \$14 million. Renee Wallis, the remedial project manager for Engineering Field Activity Northwest said, "We feel that this is an innovative, cost-effective, and green solution." In 1998 remedial design began for the implementation of phytoremediation, and work is planned to begin in 1999. The goal is to plant the first poplar tree on Earth Day 1999, with community members in attendance.



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Naval Inventory Control Point, Mechanicsburg, Pennsylvania

United Vision Leads to Success

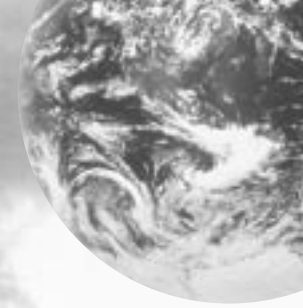
The Naval Inventory Control Point (NAVICP) in Mechanicsburg, Pennsylvania, made significant progress in environmental restoration through the active participation of the Partnering Team and the RAB. Together they strive to reach a timely consensus for cost-effective cleanup of the installation.

The Partnering Team, composed of representatives from the EPA, the Navy, contractors, and the Pennsylvania Department of Environmental Protection, share a common vision for the cleanup of NAVICP. Partnering obligates team members to agree on critical steps in the cleanup process, to follow through in a timely manner on individual commitments, and to participate actively in monthly meetings. By constantly updating goals and tracking accomplishments, the Partnering Team strives for progress while keeping in mind each agency's unique mission. The NAVICP RAB complements the Partnering Team by providing a public forum for discussion of cleanup strategies, and serves as a conduit for flowing information to the community.

"The environmental restoration program has made significant progress as a result of the partnering that was initiated by the Naval Facilities Engineering Command. The partnering sessions gave each member of the team an opportunity to appreciate talents, gifts, and expertise that everyone brings to the table," said Asuquo Effiong of the Pennsylvania Department of Environmental Protection.

From January through September 1998 the Partnering Team scrutinized approximately 70 areas of concern on the base. The Partnering Team saved cleanup time and funds by diligently assessing each site. Through intensive analysis and desktop reviews of the sites, the team concluded that half of the sites do not pose a threat to human health or the environment.

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In addition, the Partnering Team recommended interim restoration measures for many of the remaining sites. These recommendations also resulted in considerable time and cost savings. One such measure was used at the Ingot storage area, site 11. The team developed an erosion control project that involved the installation of a gravel blanket and concrete curbing. The erosion control


effort inhibited contaminants in the soils from migrating into a storm water drainage ditch. "This simple and relatively inexpensive action will protect miles of pristine streams and reduce further assessment and cleanup costs associated with the storm water drainage system," said LT Cathy Mulhearn, Navy co-chair for the NAVICP RAB.



NAVICP
Mechanicsburg,
Pennsylvania

Naval Air Weapons Station Point Mugu, California

Using Innovative Solutions to Reach SMART Objectives in a Fragile Environment



Naval Air Weapons Station (NAWS) Point Mugu's Cleanup Program is synonymous with environmental success. Active in the areas of innovative technology demonstration and community involvement through the Restoration Advisory Board, NAWS Point Mugu recently won the Chief of Naval Operations awards for Environmental Cleanup, Environmental Quality, Natural Resources Conservation, and Cultural Resources Management.

A major reason the station won these prestigious awards was its prudent use of innovative solutions to remediate a unique and especially fragile habitat. Solutions that support risk-reducing SMART cleanup objectives include working in limited time windows to avoid nesting and mating seasons of endangered migratory birds, using wildlife biologists and archaeologists to monitor cleanup site work when warranted, developing ecological, risk-based cleanup goals, and integrating natural resource management techniques into cleanup designs. Removal actions were performed at 14 separate sites, resulting in the restoration of 12 acres of wetlands and the enhancement of another 29 acres.

This year NAWS Point Mugu partnered with the U.S. Army Environmental Center and the U.S. Army Corps of Engineers Waterways Experiment Station to demonstrate electrokinetic remediation of metal-contaminated soil at one site. In keeping with SMART initiatives, cost savings of 40 to 90 percent are expected compared to conventional cleanup technologies such as excavation and offsite disposal.

At another site, the soil was contaminated with chlorinated solvents from an underground tank and from lubricants in an equipment maintenance area. NAWS Point Mugu established a team to evaluate whether innovative bioremediation or a more conventional cleanup technology was appropriate. The technologies considered were computer-modeled to estimate the time and money each required to achieve acceptable results. Bioremediation showed the most promise, with a potential cost savings of up to 70 percent compared to a more conventional pump-and-treat technology.

NAWS Point Mugu also worked closely with the surrounding community while completing required remediation projects. NAWS Point Mugu formed a RAB in 1995 that is unique because it also serves as the RAB for the nearby Naval Construction Battalion Center at Port Hueneme. Known as the Oxnard Plain RAB, it provides an effective forum for resolution difficult issues that arose during the course of the cleanup program.

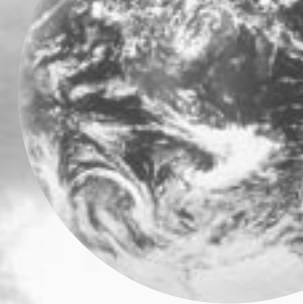
Two contentious issues also arose during the public involvement phase for the removal actions at what are known as sites 1 and 4. First, an American Indian group expressed concerns about proposed archaeological monitoring activities to be performed by NAWS Point Mugu during the removal actions. Second, a local environmental group expressed concern about proposed storm water management practices to be performed during the removal actions. Both issues threatened to delay the start of cleanup. These two groups were invited to participate in the RAB, which became the forum for all stakeholders to meet and discuss their views. Trust grew after several RAB meetings, and both issues were resolved sufficiently to allow the removal actions to continue on schedule.

Marine Corps Logistics Base (MCLB) Albany, Georgia



One of the advantages of using SMART cleanup technologies is on-the-spot identification of hazards and contaminants. An excellent example is MCLB Albany's Environmental Restoration Program, which instituted an aggressive basewide program to study groundwater conditions in the field. The program's purpose is to identify and evaluate potential impacts of past waste disposal and releases to the base's groundwater.

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Frequent use of field chemistry allows MCLB Albany's investigators to collect and analyze data from groundwater monitoring wells on site, without having to waste time and money sending samples to labs. Quick results mean quicker responses, and less time for any contaminants to spread or harm human health and the environment.

MCLB Albany uses what is called a HACH™ kit, which is a rapid-surveying tool for testing groundwater. The HACH™ kit field test is easy and efficient; in a simplistic way, it could be compared to checking the chlorine levels in a pool. The investigator adds an "indicator" to a groundwater sample. A color change indicates the presence of certain chemicals and the intensity of the color reveals how much of the chemical matter is in the groundwater sample. Natural degrading, or attenuation, is highly desirable, and it is one of the SMART technologies gaining widespread use for its cost and labor efficiency.

What makes this field testing technology invaluable for MCLB Albany is the fact that the base must analyze samples from more than 280 groundwater monitoring wells installed for this cleanup program. Data from the wells will help cleanup officials determine the horizontal spread of contamination and gain an understanding of the base's hydrogeological characteristics. In 1997 alone, field crews sampled more than 200 monitoring wells, taking approximately 200 samples and performing 4,000 sample analyses. With this in mind, imagine for a moment the complexities and costs without field testing. The base would have to bottle, label, and ship all those samples, and then pay for the labor hours, shipping, and testing.

In addition, MCLB Albany is also investigating whether chemical releases from the base have reached the deeper portion of the aquifer that begins approximately 200 feet below the surface. If so, data from wells will also be used to evaluate the movement and extent of the chemical contamination.

Through these SMART choices, MCLB Albany's program heads toward its goal of ensuring that any environmental impacts from past activities are taken care of in a timely manner. The positive results include human health safeguards aimed at maintaining safe groundwater.

The MCLB Albany Environmental Restoration Program's recent achievements include the 1997 close-out of 18 of 26 sites. Of the 18, 15 are clean-closed, requiring no further action. Four final Records of Decision were signed, closing out nine potential sources of contamination. Seven sites were released from further study following completion of the preliminary assessment and site investigation phase.



Marine Corps Air Station El Toro, California

Inter-Service Transfer of Treatment System Saves Time and Money for the Marine Corps

In a cooperative effort between the Air Force and the Department of the Navy, the Marine Corps Air Station El Toro in Orange County, California, obtained soil vapor extraction (SVE)

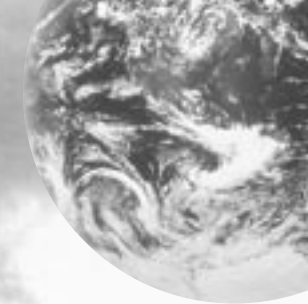
treatment system equipment from Norton Air Force Base, San Bernardino, California. The Air Force successfully used an SVE unit for its BRAC cleanup at Norton AFB and has transferred the equipment to the Marine Corps to remediate soils contaminated with Volatile Organic Compounds (VOCs) including gasoline and solvents. The use of the SVE unit is expected to shorten the project length by six months in the design phase and save approximately \$1.1 million in capital costs for design and construction.

The decision to use Norton's SVE unit at MCAS El Toro was an outgrowth of site visits and conversations between the BRAC environmental coordinators (BECs) and remedial project managers (RPMs) from El Toro and Norton AFB. According to Joseph Joyce, MCAS El Toro BRAC environmental coordinator, the RPMs at Norton AFB were dealing with environmental contamination and issues similar to those faced at MCAS El Toro, especially issues dealing with the remediation of soils contaminated with VOCs. Norton AFB used the SVE



Collecting soil samples and recording data during drilling at Marine Corps Air Station El Toro, California.

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technology, the primary presumptive remedy suggested by the U.S. EPA for VOC-contaminated sites, and planned to finish cleanup in six months, just when El Toro was scheduled to start cleanup of site 24, the VOC source area. El Toro had already completed pilot testing and selected SVE as the technology of choice for the contaminated site. After agreement between Headquarters Marine Corps and the Air Force Base Conversion Agency, the El Toro Team was able to modify the existing Air Force contract to allow for the disassembly, refurbishment, transport, and construction, demonstration and operation of the treatment system at MCAS El Toro.



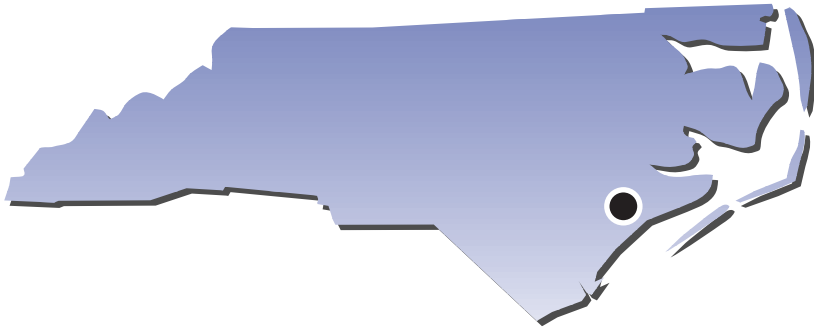
Continuous soil cores were collected to evaluate TCE movement in the subsurface and define the source of TCE in the vadose zone at Marine Corps Air Station El Toro, California.

Mr. Joyce said, “This was a great opportunity to utilize existing equipment that was demonstrated to be successful, develop a strong partnership with the Air Force, and maximize cost savings for the Federal Government.”

What Is SVE?

SVE is a relatively simple process that physically separates chemicals from the soil. SVE systems are best suited to VOCs that have a tendency to evaporate easily, such as solvents. As the name suggests, SVE systems extract chemicals from the soil in vapor form. By applying a vacuum to a network of SVE wells, VOCs are pulled to the surface as a vapor. This vapor is passed through an activated carbon filter to trap the VOCs before the air is discharged to the atmosphere. When the activated carbon filters become saturated with VOCs, the carbon is returned to the manufacturer where it is regenerated and the VOCs are destroyed. By removing the VOCs from the soil, further groundwater contamination is prevented or minimized, thereby reducing the time required for groundwater cleanup. SVE systems have been widely used to clean up VOCs at numerous sites at military installations around the country.

The MCAS El Toro Base Realignment and Closure Cleanup Team, which is made up of representatives from the Marine Corps, U.S. Environmental Protection Agency, and the California Environmental Protection Agency, has had significant success in restoring the installation for re-use. Through their dedication and hard work approximately 85 percent of the installation at MCAS El Toro is certified clean and ready for transfer to the community.



Marine Corps Base Camp Lejeune, North Carolina

Team Approach Makes Camp Lejeune A Winner

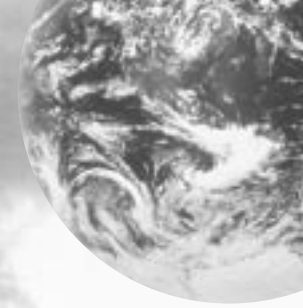
In 1998 the Home of Expeditionary Forces in Readiness—Marine Corps Base Camp Lejeune, North Carolina—was presented the Secretary of the Navy Environmental Cleanup Award for Marine Corps Installations, the third time in recent years the base's cleanup team earned this distinction. This is especially noteworthy because the need for waste disposal controls had not been recognized even though scientific natural resource management has long been a hallmark of the base. For nearly half a century, while resource managers were developing forests and other natural resources on the 153,000-acre training facility, hazardous wastes were migrating into the water table below.

Today Lejeune's primary environmental challenge is to prevent past disposal practices from posing a threat to the viability of the world's largest amphibious training installation. The base gets its drinking water—about 8 million gallons a day—from the underlying Castle Hayne aquifer. Cleanup of past hazardous wastes is essential to protect the health of those who live, work, and train there. Faced with contamination capable of making groundwater sources unusable, the base adopted an aggressive cleanup approach.



Cleanup at Marine Corps Base
Camp Lejeune, North Carolina

Restoring the Future



Soil and groundwater remediation can be costly and complex, so cleanup programs are continually assessed in hopes of finding new or better ways of getting the job done. Lejeune improved its cleanup procedures through partnering efforts that expedited remediation and saved money.

The partnering process builds consensus by addressing the needs of stakeholders near the beginning. In the early 1990s the base, regulators, the state, support contractors, and citizens worked together as informal partners. Their team approach was based on the theory that people will support what they help create. Because all were involved in the problem-solving effort, they also shared responsibility for their decisions.

In 1994 Camp Lejeune transitioned to a formal partnership. This approach to cleanup allowed members to expedite study, design, and construction and achieve site cleanup faster. By September 30, 1998, Camp Lejeune had signed Final Records of Decision on 18 sites.

Team members attribute their success to basic trust among team members and willingness to work together:

- *“Everyone is committed to the same goal of environmental remediation,” said Gena Townsend, remedial project manager, EPA Region IV.*
- *“A team-oriented decision-making process has enabled us to take measured risks and we’re not afraid to try new approaches,” said Kate Landman, LANTDIV remedial project manager.*
- *“All Partnering Team members—regulators, contractors, and DON representatives—play an active role in decision-making relative to Lejeune’s IR program,” said Mick Senus, Installation Restoration Program manager at MCB Camp Lejeune. “This team interaction and input into decision making gives members a sense of ownership of the progress made in cleaning up sites at Camp Lejeune.”*
- *“I commend Camp Lejeune for its first-rate environmental program led by an impressive team of environmental professionals,” said W. A. Nitze, EPA assistant administrator.*

Placed on the NPL in 1989, with a signed Federal Facilities Agreement in 1991, Camp Lejeune is now taking part in DOD’s Expedited Environmental Cleanup Program. Several procedures were developed to speed up environmental remediation. These included a single phase of field work rather than several; use of field screening techniques and on-site mobile labs; concurrent document reviews; sampling strategy meetings with those who use data; and shortened document review periods.

NAVFAC involved both investigation contractors and remedial action contractors in site cleanup planning. The design process became more efficient because unknowns associated with cleanup were addressed. To more effectively prepare for unknowns, the contractor studying the problem developed performance-based plans while the remediation contractor provided drawings to satisfy construction details.

MCB Camp Lejeune provides housing, training facilities, logistical support, and administrative supplies for Fleet Marine Force and other assigned units, operates specialized schools, and provides other training. Its 92-mile perimeter has 14 miles of Atlantic coastline and includes a barrier island system separated from the mainland by salt marshes, small bays, and the Atlantic Intracoastal Waterway. Half the property on the heavily forested base is under forestry management. The New River and other streams create wetland areas near the coast, and 26 endangered or threatened species inhabit the area.

Leading the Way— Restoring the Future



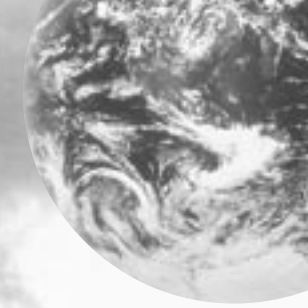
After more than a decade of effort and billions of dollars in expenditures, the Navy's environmental cleanup program is moving with increasing speed toward site closeout at a majority of its

installations and sites. The initial focus of the program was on finding the sites (site identification), deciding how to best handle cleanup at these sites (analysis and remedy selection), determining which sites to clean up first (risk-based prioritization), and beginning the cleanup process (remediation design and beginning construction). Today the Navy's progress can be measured by the number of remedies in place (RIP) and the number of sites categorized as response complete (RC), which indicate that sites are reaching the last milestone in the often lengthy cleanup process. The theme of "Restoring the Future" highlights the Navy's objective of completing the cleanup program.

Department of the Navy Cleanup Policy

Development of the Defense Environmental Restoration Program by Congress has increased management attention to cleanup programs at all levels within the Department of the Navy. We have developed a number of cleanup goals under which we will conduct our cleanup efforts.

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DON Environmental Restoration Goals

Partnering

We want to have an open dialogue with regulators and the communities through partnering because open, cooperative decision-making with regulators and communities has proven to be an important tool for success in our environmental programs. Successful partnering makes better use of cleanup funds by promoting communication and teamwork among diverse interests, reducing the time between study and actual cleanup of contamination, and sustaining performance of the overall cleanup effort.

SMART Cleanup Goals

- Involve the community.
- Eliminate threats immediately.
- Commit to action and expedite cleanup.
- Prioritize site cleanup by using a risk management approach.
- Keep future land use in mind.
- Partner with involved agencies.
- Comply with all regulations.

Restoration Advisory Boards (RABs) are an important part of partnering. They are open forums through which citizens can better understand the nature and severity of contamination on our bases, and they give them a voice in decision making. RAB input has added valuable common sense to the cleanup process and has contributed to cost avoidance in our experience.

Technology Innovation

The Department of the Navy's environmental technology program continues to be vital to our efforts. Innovative technology initiatives support our business approach to meeting environmental standards by helping us do more, faster, and at less cost than by using other established practices.

Using technology application peer reviews, known as the Cleanup Review Tiger Team (CURTT), at each Engineering Field Division/Activity we found ways to manage risk better, minimize cost, accelerate cleanup, and still protect human health and the environment.

Perhaps more importantly, the Tiger Teams help to focus attention on where the greatest opportunities are for cost control. These factors frame the level of cleanup that is required and what cleanup remedies can be considered to meet those needs while always putting protection of human health and the environment as our first priority.

More Cleanup, Less Study

We continue to execute a larger portion of our Environmental Restoration, Navy (ER,N) budget on actual "shovel in the ground" cleanups. We accomplished this through early identification of cleanup opportunities, wise use of our cleanup contracts, and the cooperation and support of regulators and the community. That is not to say that we can do without studies.



Studies are an integral part of the cleanup effort, not just some sort of paperwork shuffling. We must first understand the types, locations, severity, and geophysical characteristics of the contaminants before we can decide what we should do, if anything. Thorough preliminary investigations can prevent unnecessary cleanup expenses. Our bottom line goal is the safe close-out of sites, not just spending money on cleanup. Our goal is to make cost-effective decisions through careful analysis, and proceed to active remediation only where protection of human health and the environment require it.

Risk Management

The Department of Defense adopted a new prioritization scheme in 1995 based on risk management and the relative risk of sites. Relative risk considers the relationship between contaminants, the pathways that contaminant may travel, and the receptors—human, animal, and plant—that can be affected adversely. Sites are then grouped in categories of “high,” “medium,” and “low” risk so we can establish priorities. Since we cannot reasonably and financially do everything first, relative risk seeks to identify sites that pose a greater relative health risk for first action.

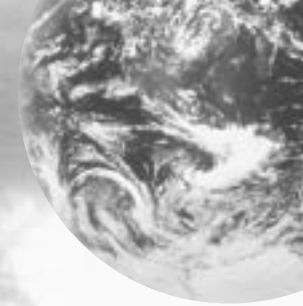
While we give priority to sites in the high category, we remain flexible within a stable funded program to clean up selected medium and even low category sites when it makes sense to do so. For example, the small additional cost of having the cleanup contractor take care of a low category site adjacent to a similarly contaminated high category site may make better business sense than bringing a contractor back years later.

BRAC Environmental Program

Implementation Strategy

Our implementation strategy focuses first on achieving operational closure at each military installation selected for closure as quickly as possible. This means that all mission equipment and military personnel (with the exception of a small caretaker staff) have been disbanded or relocated to a new location and the military mission has ceased. Second, we seek to fast-track clean up of contaminated sites and transfer BRAC property to support local communities in their conversion and redevelopment efforts.

Restoring the Future



Rapid operational closure also provides affected communities with early opportunities for economic redevelopment. Effective community involvement and planning are central to conversion and redevelopment of our bases and to the retention of a skilled labor force in the base closure communities. Our conversion and redevelopment efforts are guided by the Administration's Five-Point Plan for Revitalizing Base Closure Communities:

- Job-centered property disposal as an economic incentive,
- Fast track environmental cleanup to facilitate reuse,
- Base transition coordinators to reduce red tape,
- Ready access to redevelopment assistance, and
- Larger redevelopment planning grants.

Supporting Economic Redevelopment

In implementing BRAC closures, we want to convey property to communities expeditiously to advance their economic recovery—but not so quickly that we fail to protect the public from contaminated soil, air and water, lead-based paint, and friable asbestos. We are also required by law to consider the impact of property disposal on the protection of wetlands, the coastal zone, endangered species, and archeological and historic sites. A final, approved reuse plan from the Local Redevelopment Authority (LRA) is critical to the process.

This process takes time, and in many ways, is far more challenging than the closure and relocation actions. We can provide interim leases of base closure property to promote redevelopment, but as stewards of Federal land, we are required first to prepare an environmental document known as the "Finding of Suitability to Lease" (FOSL). To accelerate this process, we have been working with LRAs to identify the most attractive leasing prospects and to prepare the required documentation ahead of time. We also prepare the required "Finding of Suitability to Transfer" (FOST) as soon as the property is environmentally suitable to convey title.

We are implementing four rounds of base closure as directed by law. The first was in 1988 under the Defense Authorization Amendments and Base Closure and Realignment Act of 1988 (Public Law 100-526). Three additional rounds came in 1991, 1993, and 1995, under the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510). As a result of these decisions, we are implementing a total of 178 actions consisting of 46 major closures, 89 minor closures, and 43 realignments.

Proceeding With Environmental Cleanup

Several communities have expressed concerns about the pace at which the DON is able to clean up contamination on closing bases. The Navy and Marine Corps have occupied these bases for 50 to 100 years or more, and many of them are industrial areas. We now know that disposal practices that were acceptable in the past are no longer practiced because of the environmental contamination they leave behind. However, environmental problems posing an imminent risk to health and human life are rare, and in fact, we give these problems immediate priority in our cleanup efforts. Cleanup associated with BRAC bases will be expensive—an estimated cost of \$1.5 billion—and time consuming. Our goal is to have all BRAC sites cleaned up and made available for transfer by the end of fiscal year 2005.

We established BRAC cleanup teams composed of Navy and Marine Corps personnel and environmental regulators to assess, prioritize, and perform the necessary cleanup quickly. We work with regulators and communities to tie cleanup standards to the nature of the reuse. This will speed cleanup, save money, and still protect human health and the environment. We established detachments of former shipyard workers and trained them to do the necessary cleanup work. We put into place both national and local contracting authority to perform the work.



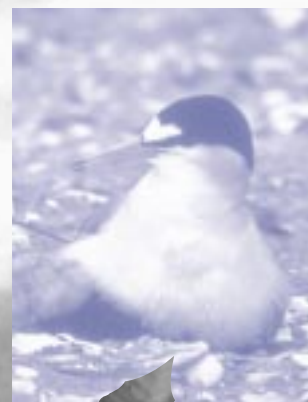
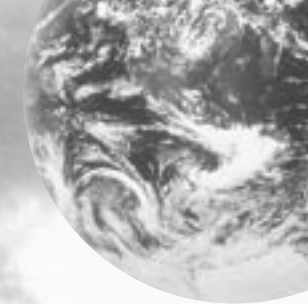
Nevertheless, budget constraints limit our ability to accomplish the cleanups that do not pose an imminent threat but still must be performed before the property can be conveyed. There is simply not enough money to clean up every

base at once. Therefore, our goal is to target cleanup dollars on those sites that have the most immediate and definitive prospect for reuse. Sites with approved reuse plans will get top priority for cleanup funds. Our intent is also to not let cleanup get in the way of reuse. We are also working with EPA and state regulators to use the new section 334 amendments to CERCLA, which permits the conveyance of property before cleanup is completed unless such a conveyance would harm human health or the environment.

The Way Ahead

We in the Department of the Navy understand that the Nation's agenda includes both a strong Navy and Marine Corps and a protected environment. While we must and will comply with environmental standards, we want to do so in a businesslike manner. We will continue to identify, evaluate, and select the most cost-effective alternatives for achieving the goals of our cleanup program. In doing so, we will also use the most cost-effective strategies available to set goals, track progress, establish benchmarks, and—most important—achieve results. This is the essence of our SMART cleanup program.

Restoring the Future



Crossing the Finish Line

Naval Security Group Activity Sabana Seca, Puerto Rico, Finishes First in Race to Clean Up Environment

By SMART cleanup standards, 1998 was a banner year for Naval Security Group Activity Sabana Seca in Puerto Rico. That's when the Navy was told that the high-frequency direction-finding facility that provides communication and related support to the Department of Defense was being removed from the National Priorities List (NPL) of hazardous waste sites. The 2,200-acre base, which lies on the island's north central coast about 14 miles west of San Juan, was the only federal facility in Puerto Rico included on the NPL.

The U.S. Environmental Protection Agency, in coordination with the Puerto Rico Environmental Quality Board (EQB), decided to delete the NSGA Superfund site formally from the NPL because site cleanup was finished, investigation determined that all appropriate actions had been completed, and no further response action was necessary.

EPA Regional Administrator Jeanne M. Fox said, "The Navy personnel were cooperative and responsive in coordinating their cleanup activities with EPA and the government of Puerto Rico. The Clinton administration is committed to eliminating serious hazardous waste sites from the environmental landscape. This deletion marks the successful completion of that process at this site."

Environmental Quality Board Chairman Hector Russe said, "The combined efforts and cooperation of all the parties involved in the various activities leading to the successful delisting of the Naval Security Group Activity in Sabana



Looking southeast with base housing visible in the background, the subbase is laid for an asphalt cap over the former pesticide shop, Site 6, Sabana Seca, Puerto Rico.

Seca from the NPL should be an example for other contaminated sites to follow.”

Among the cleanup activities completed at Sabana Seca were the demolition of a building that housed a pest control shop, the source of pesticide contamination in soils on the property, and construction of an asphalt cap over the building area. Investigations of four other sites at the facility—including three on-site landfills and one paint disposal area suspected of containing hazardous wastes—found only low levels of residual chemicals in small quantities that do not pose any significant remaining risk to human health and the environment.

SMART Steps to Success

To understand the importance of NSGA’s successful removal from the NPL—the first full naval facility to reach this milestone—one needs to know the cleanup challenges and how the cleanup team overcame them.



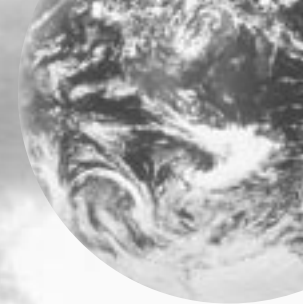
Looking south over the asphalt cap on Site 6. In the background you can see base housing south of Store Road, Sabana Seca, Puerto Rico.

Originally a pineapple and grapefruit plantation, the Navy took possession of Sabana Seca during World War II, and then turned it over to the U.S. Army after the war. In 1951 the Navy again assumed control and established the U.S. Naval Radio Station Sabana

Seca in 1952. In 1971 NSGA Sabana Seca was established as an independent shore activity of the Navy and operated as a communications center ever since.

Over the years, the operations that contributed to contaminated sites on the facility included paint shops, boiler plants, power plants, a carpentry shop, a plumbing shop, a vehicle maintenance shop, firefighting training, and water treatment plants. The primary sites of concern were the former pest control shop where pesticides and

Restoring the Future



herbicides were disposed of and a marsh which receives leachate from an adjacent municipal landfill. The facility was placed on the NPL in 1989 and a Federal Facility Agreement was signed in 1992.

NSGA Sabana Seca has an especially demanding geology and climate. Intense heat and humidity made site investigations extremely difficult, and some field efforts were delayed several months due to hurricane damage. The local geology, characterized by a limestone region with sinks, underground streams, and caverns, also caused problems. A typical two-day drilling event often would take two weeks to complete. There were cultural and language challenges as well. Although Puerto Rico is a United States commonwealth, the island's culture and language are Spanish, meaning that highly technical documents had to be translated. In addition, early animosity toward the Navy made community relations difficult. However, the Navy's emphasis on community involvement worked to mitigate many problems.

A Technical Review Committee formed in 1990 was converted to a Restoration Advisory Board in 1996. Public involvement work was focused on the local residents' specific needs, and the Community Relations Plan was prepared in both English and Spanish. Two Information Repository/Administrative Records were also established in the community to ensure public access to documents related to the cleanup program. The communities surrounding the base became stakeholders in the cleanup effort, which in turn created allies who cooperated extensively to speed up restoration and achieve removal from the NPL.

"This is a significant accomplishment for Navy environmental efforts. Our program is well into remediation and cleanup," said Elsie Munsell, Deputy Assistant Secretary of the Navy for Environment and Safety. "Deletion of Sabana Seca from the NPL is the result of the Navy, EPA and the Commonwealth of Puerto Rico working together to resolve environmental issues. We hope that this is one of many more delistings to follow."



This photo was taken from Stone Road looking at the entrance of the pest control shop area (Site 6) and southwest corner of site 6. Lush vegetation grows on the picnic side of Site 6, Sabana Seca, Puerto Rico.



for more information
on additional success stories,
visit the Department of the
Navy web site at:
www.enviro.navy.mil/

